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NEW CLAIMS

*Def.* → 1. Process to remove solid slag particles from a mixture of solid slag particles and water present in a quench zone, which quench zone is part of a process for the preparation of synthesis gas by partial combustion of finely dispersed solid carbon-containing fuel with an oxygen-containing gas, by

5 (a) discharging of the mixture from the quench zone to a first vessel,

(b) discharging slag particles from the first vessel to a second vessel by means of gravity, which second vessel is located below and fluidly connected to said first vessel by means of an open connecting conduit and is further provided with closed means to discharge slag from its lower end, and discharging water poor in solid slag from the second vessel via a conduit provided with pumping means and having an inlet located such that water poor in slag particles are pumped from the second vessel,

10 (c) fluidly closing the first vessel from the second vessel,

(d) opening of the means to discharge slag from the second vessel to remove slag from the second vessel to a lower pressure zone, and

15 (e) closing the means to discharge slag from the second vessel and repeating steps (a) to (e).

20 2. Process according to claim 1, wherein the water poor in slag obtained in step (b) is supplied to the first vessel.

25 3. Process according to claim 2, wherein the water poor in slag is supplied to the lower end of a first vessel,

which first vessel has a height over diameter ratio of more than three.

4. Process according to any one of claims 1-3, wherein the water, which is poor in solids, is discharged from the upper part of the second vessel at a position away from the outlet opening of the first conduit entering the second vessel.

5 5. Process according to claim 4, wherein a tubular shield is present around the outlet opening of the first conduit directing the slag particles entering the second vessel downwards and away from the inlet of the conduit through which water poor in slag particles is pumped from said second vessel.

10 6. Process according to any one of claims 1-5, wherein the ratio of volume of water, which is extracted from the second vessel, relative to the volume of solid slag particles being transported to the second vessel in the same time period is between 0.7 and 1.5.

15 7. Process according to claim 6, wherein the ratio is between 0.8 and 1.

20 8. Process according to claim 6, wherein the volume of water extracted from the second vessel is equal to the volume of slag particles being transported to the second vessel.

25 9. Process according to any one of claims 1-8, wherein fresh water is supplied to the second vessel during step (d) and/or (e) resulting in that the second vessel contains fresh water before step (b) is performed.

30 10. Process according to any one of claims 1-9, wherein water poor in slag is discharged from the first vessel.

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